Information literacy skills of first-year students at the Mangosuthu University of Technology at a pre-library orientation and instruction phase

Acquinatta Nomusa Zimu

Acquinatta Nomusa Zimu
Department of Information Science, UNISA
zimuan@unisa.ac.za

Abstract

This article reports on a study which explored the information literacy (IL) skills of first-year students at the Mangosuthu University of Technology (MUT) at a pre-library orientation and instruction phase. The study adopted a descriptive survey design and used a questionnaire to collect data from a convenience sample of 170 students. Findings, which were in line with similar studies, revealed that most first-year students lack what could be considered fundamental IL skills. The findings underscored the necessity of IL programmes in both secondary and primary schools. It is further recommended that IL interventions start at what could be considered a basic level insofar as tertiary students are concerned. National IL standards which meet local needs of tertiary students and their curriculum need to be developed while taking cognisance of international standards.

Keywords: Information literacy, library literacy, library orientation, first-year students, Mangosuthu University of Technology, MUT

Introduction

Since the concept "information skills" was introduced by Zurkowski in 1974, it has evolved in line with technological trends. Zurkowski used the concept to refer to people who can solve their information problems by using relevant

information sources and applying relevant technology (Boekhorst and Britz 2004: 64). In this, the 21st century, the concept "information literacy" (IL) has varied definitions. Authors opine that it needs to accommodate other literacies such as information and communication technology (ICT) literacy, library literacy, academic literacy, media literacy, digital literacy, visual literacy and cognitive literacy (Favaro 2012; Ondari-Okemwa 2012; Tiemensma 2012). Favaro (2012: 216) goes on to explain the concept of "metaliteracy" as an overarching and self-referential framework that integrates emerging technologies and unifies multiple literacy types.

This evolvement of the IL concept to accommodate other literacies has created many challenges in terms of IL programmes and IL skills for librarians, academics and students. The next section briefly discusses these challenges.

Information literacy challenges of students

There is consensus among scholars that many students display weak writing skills, synthesis of facts and referencing patterns, and have tendencies of plagiarising (Noll and Brown 2018; Mnkeni-Saurombe 2015: 4; Neerputh 2012; Fourie and Bothma 2005). For example, a study on the IL skills of first-year students at the Durban University of Technology indicates that even those students who are cell phone "savvy" displayed weak IL skills in terms of internet searches, information retrieval, assignment writing, topic analysis and other skills needed to master their academic programmes (Neerputh 2012). Lwehabura (2018: 428) points out that students face many challenges in the process of information searching, retrieval and use. In addition, other challenges in information use and access include language barriers, computer use skills and general experience in library use.

Information literacy challenges of librarians and lecturers

Educators and information professionals view IL as an important vehicle for developing and enhancing lifelong learning as well as creating dynamic functioning members of society (Lwehabura 2018). However, the actual collaboration to ensure smooth sailing to the destination of creating a knowledge society seems to be a "mission impossible" (Davids and Omar 2018). Mnkeni-Saurombe (2015: 3) emphasises that partnership between librarians and academics is crucial especially in an open and distance learning environment. It can help make a difference in the learning experience of students. Despite this, studies lament the ineffectiveness of once-off, sporadic IL initiatives between lecturers and librarians (Noll and Brown 2018; Hart and Davids 2010; Jiyane and Onyancha 2010; Fourie and Krauss 2010). In South

Africa (SA), there is a dire need to improve the IL skills of students and educators and collaboration is, therefore, imperative.

Challenges of information literacy programmes

In SA, one of the aims of the education system is the improvement of IL skills of students. In this regard, Moll (2009: 40) points to the Core Teaching Programme for Information Skills that was introduced in 1994 with the aim of improving the IL skills of learners. The National Curriculum Statement (2004) aims to improve critical and developmental outcomes for learners such as the ability to identify, collect, analyse, manage, critically evaluate and use information effectively; become critical thinkers; work as a team; and acquire various skills as indicated in the broader definition of the concept of IL. This definition includes ICT and communication skills and reading, listening, writing and other literacies (Moll 2009). Given the challenges experienced in terms of the dearth of educational resources, including school libraries, the future seems bleak (Mojapelo 2018a, 2018b) should no aggressive remedial programmes be put in place.

It cannot be disputed that basic education IL challenges are inherited by higher education. To address the challenges, scholars have recommended various IL initiatives such as stand-alone IL programmes or the embedding of IL programmes into the curriculum. Some higher education institutions in SA have been pro-active in improving IL programmes. For example, at the University of Pretoria (UP), a full IL course is compulsory for all first-year students. It is a credit-bearing course offered by the Department of Information Science. At the University of South Africa, a course "Developing information skills for lifelong learning" is compulsory for information science students but optional for students from the other disciplines (Tiemensma 2010: 164). However, the author has learnt from the responsible lecturer that the course is over-subscribed which suggests that students, other than information science students, are aware of the need for such a course. The Tshwane University of Technology (2016) and the Cape Peninsula University of Technology (CPUT) (2013) have both introduced certificate-based IL courses (Davids and Omar 2018). At the CPUT the short course is called the "Certificate of Information Literacy" and was started in 2012. Its development was informed by the IL deficiency in the subject guides. Despite these initiatives, studies continue to point to the limited IL skills among both undergraduate and postgraduate students (Lwehabura 2018; Noll and Brown 2018). It is apparent these IL programmes are not flawless and thus need to be continuously updated in line with technological and other trends. Yager, Salisbury and Kirkman (2013) argue that research is yet to identify the most appropriate form of IL programme.

The following section describes the IL training at the MUT specifically.

Information literacy training at the MUT

The MUT is one of the historically disadvantaged institutions in SA. It was established during the mid-1970s (Institutional Calendar 2004) and is based in the Province of KwaZulu-Natal. The author was an employee of the institution between June 1996 and April 2008. During that period the library orientation and instruction programme comprised two phases: the first phase was a library tour and explanation about library policies. The second phase focused on educating students about the following key areas: library layout; organisation of information in the library (classification system); location and retrieval of information (library catalogues); sources of information in the library; topic analysis and referencing. Library instruction training was a once-off, two-hour session and was conducted at the beginning of each semester. This training was compulsory as it also gave students the opportunity to formally register their library membership. The privilege of accessing library databases such as Sabinet Online, SAE Publication, National Research Foundation (NRF) and EBSCOHost was mainly enjoyed by the lecturers and senior students. Follow-up training was done depending on a student or lecturer's request. The latter training was mainly focused on how to access library databases.

In terms of library resources at the time of the study (2005 – see *Note* below), the library staff comprised 24 professional, semi-professional and non-professional members. The collection included books, periodicals, electronic and multi-media resources. The book collection numbered 58 500 items. More than 300 journal titles were available in the library but not all of them appeared on the library electronic catalogue due to an uploading backlog. The MUT computer laboratory had 47 computers, one of which was reserved for CD-ROM usage. As the laboratory was always overcrowded, students were allowed only one hour to do internet searches. The video library comprised 1 828 video titles but only 196 of these appeared on the library electronic catalogue due to a backlog in cataloguing (Zimu 2005: 11-13).

Note: The author acknowledges that this article is reporting on findings which could be considered dated and that the scope of IL training might have expanded beyond the short sessions of library orientation and instruction (described above) which were implemented to the time of the author's departure in 2008. Also, as outlined earlier, the definitions of IL have evolved in line with technological trends. At a broader level, this is evident in the article entitled "National Library Week: Libraries will give you life-long lessons" (Machi 2016) which suggests that IL programmes have indeed evolved with these

trends. Machi (2016) argues that it is important for both students and lecturers to access e-resources in this, the 21st century. It is the author's view, however, that the findings reported on in this study remain relevant at a fundamental level and are important as a matter of record. The proliferation of mobile devices to access the internet (including educational resources) and the increase in the number of information sources available on the internet have, arguably, been the most significant developments in ICT over the last 10 years from an information perspective. And while the use of print-based information sources is decreasing, such sources will continue to remain important ones for the foreseeable future in the South African context. The IL skills as explored in the study were important at the time and continue to remain so despite developments in ICTs. It is evident, however, that a follow-up study needs to be considered.

Problem statement and objectives

Mojapelo (2018b: 412) avers that approximately 92% of public schools in SA are without decent, well-stocked, well-staffed and sustainable school libraries. Fourie and Krauss (2010: 108) argue that in SA many teachers face poor or no access to computers, the internet, printers and the software required. Quality education in many schools is absent and this is particularly so in disadvantaged communities (Mojapelo 2018b). This assists in explaining the low IL levels among teachers and learners and the challenges associated with this (Mojapelo 2018a: 4). First-year students from such disadvantaged backgrounds find academic life overwhelming and confusing. This underscores the importance of strong support systems, including IL programmes, to guide them.

Given that the majority of first-year students at the MUT are from disadvantaged communities an IL programme could thus be considered a priority and it was the intention of the study to determine what, if any, IL skills the first-year students had prior to attending the programme. It was anticipated that the findings, where appropriate, could "feed into" and thus improve the existing IL programme. As Ranthla (2017) and Fourie and Krauss (2010) have subsequently noted, it is important to do a pre-analysis study and thus develop an IL programme in-line with students' needs and technological trends.

Therefore, the broad objective of the study was to explore the IL skills of first-year students at a pre-library orientation and instruction phase. More specifically, the study determined students' understanding of:

- The traditional functions of a library.
- The basic purpose of a library catalogue and their ability to identify a Dewey Decimal Classification (DDC) number.
- Print and electronic information sources and information within those sources.
- Topic analysis and referencing.
- The evaluation of information sources.

The final objective was to make recommendations pertaining to the MUT Library's IL programme.

Literature review

In SA, the push for the implementation of IL assessment programmes was from the Higher Education Quality Committee (Zimu 2005: 19; De Jager and Nassimbeni 2005: 33). This need was informed by findings of a National Benchmark Tests Project which indicated the low academic literacy skills of students in higher education institutions (Tiemensma 2012: 161). A number of studies that were conducted between 1994 and 2010 confirmed that students come to university with inadequate IL skills which disadvantage them in terms of succeeding in their academic studies (Davids 2010; Toteng, Hoskins and Bell 2010; Fourie and Bothma 2005). For example, Fourie and Bothma (2005) did a study to address the "digital divide" in teaching an advanced information retrieval module between 2002 and 2004. The authors used a group of second-year information science students enrolled for a module in information retrieval (INL211) offered at the UP as their case study. Students were trained on both a theoretical component (essay) and a practical component (how to retrieve information from various library databases such as the library catalogue, ERIC, Dialog and others). During the training, the information infrastructure was brought to their attention. A seven-step model was adopted to ensure that students committed to the assignment tasks given and to working in teams. Notwithstanding prior training, findings indicated that students still experienced problems with the logical structure and use of main and sub-headings, introduction and conclusion, relevancy of content, soundness and relevancy of arguments, quality in-text references, acknowledgement of sources, and the currency of information. Plagiarism was also a problem – students sometimes relied very heavily on the sources they consulted or did not acknowledge their sources. Regarding the outcome of the practical assessment, some students were able to master the transferred skills and scored excellently while others did poorly (Fourie and Bothma 2005). The implication of this study is that an IL programme can help improve students' IL skills and ultimately academic performance provided the students themselves show commitment to learning.

It is concerning that not much appears to have changed insofar as weak IL skills among university students are concerned given that this continues to be reported in the literature on IL in tertiary education. It is in this context that calls for collaboration between academics, librarians and relevant stakeholders such as knowledge management managers, records managers, ICT specialists, indexers, taxonomists and graphic designers in devising strong IL programmes for the 21st-century students and academics (and especially those in HDIs) continue to be made (Noll and Brown 2018; Mnkeni-Saurombe 2015; Neerputh 2012).

Theoretical framework

The IL standards which were adopted as a guiding framework to assess the IL competencies of the MUT first-year students were those of the American Library Association (ALA) (2000), the Council of Australian University Librarians (CAUL) (2001) and the Association of College and Research Libraries (ACRL) (Zimu 2005: 28). In addition, Bloom's Taxonomy of Educational Objectives as outlined by Harbele (2001) in De Jager and Nassimbeni (2002:3) was also referred to. The ACRL and the ALA have actively promoted IL as necessary for an informed society in general and especially for students in higher education institutions (Tiemensma 2012: 156-7). The standards and the outcomes of the ALA, ACRL and CAUL are evident in Bloom's Taxonomy (De Jager and Nassimbeni 2003: 108-114). The standards suggest themselves as a possible instrument for the assessment of IL (De Jager and Nassimbeni 2005: 34).

Methodology

A descriptive survey design was used to examine the nature and extent of IL skills of first-year MUT students. The population or universe is the set of elements being studied (Bless and Higson-Smith 1995: 85) and in the study comprised all registered first-year undergraduate MUT students – 3 283 in total – a number too large to observe directly. Adopting a non-random sampling approach, namely, convenience sampling, a total of 170 students were identified and subsequently participated in the study. A convenience sample is described by Cohen, Manion and Morrison (2003: 12) as one in which the researcher "chooses … from those to whom she has easy access." Although non-probability samples are less representative than probability samples (Babbie and Mouton 2001: 167; Bless and Higson-Smith 1995: 94-5), it is believed that the sample was reasonably representative of first-year students at the MUT and that the findings could, with caution, be generalised to the first-year undergraduate student population at the institution as a whole (Zimu 2005: 34).

A self-administered questionnaire consisting of predominantly closed questions was used for data collection. Consequently, the questionnaire could be referred to as being more "structured" than "semi-structured" (Cohen, Manion and Morrison 2003: 247-8). Part one of the questionnaire aimed at eliciting demographic information and part two at eliciting information in line with the objectives of the study. To ensure validity and reliability, the questionnaire was pre-tested (Babbie and Mouton 2001: 244) and confirmed valid and reliable as it was understandable to the pre-test respondents who experienced no problems in completing it (Bless and Higson-Smith 1995: 130). Data were analysed using the SPSS computer program. SPSS is helpful in handling large quantities of data, finding patterns and testing hypotheses (Babbie and Mouton 2001: 583).

Findings and discussion

The reporting and discussion of the findings are in two sections. The first section reports on the demographic information and library and computer usage of the respondents, and the second focuses on the findings as per the objectives of the study.

Section one – demographic information and library and computer usage

The highest number of respondents, 50 (29.4%) were registered for the Public Finance Accounting and Law Diploma, followed by 41 (24.1%) for Marketing; 39 (23.0%) for Electrical and Mechanical Engineering; 16 (9.4%) each for Information Technology and for Office Management and eight (4.7%) for Human Resource Management. The majority of respondents, 96 (56.5%) were between 19 and 21 years of age. There was an even gender distribution, with 86 (50.6%) females and 84 (49.4%) males. The largest proportion of the sample 101 (59.4%) claimed to have used a library before. The most used library was the public library, used by 77 (76.2%) of the 101 respondents who indicated that they had used a library. The majority of respondents, 90 (89.1%) declared that they had used the library for study and research purposes using library materials. Respondents who claimed to have used a school library numbered 41 (40.6%).

Responses to questions concerning computer usage revealed that only 48 (28.2%) respondents had used a computer before. The greatest proportion, 122 (71.8%) had not used a computer. Of the 48 (28.2%) who had used a computer, 28 (58.3%) used it for word processing, 17 (35.4%) for Internet searches and only four (8.3%) respondents had used it for accessing a library database. In relation to the question on previous exposure to a library orientation and

instruction programme, 15 (8.8%) claimed to have had some form of library orientation and instruction exposure. The largest percentage, 155 (91.2%) did not have any such exposure.

Thus, the majority of the sample was relatively young – many, no doubt, straight from school. What library use there was, was mainly of the public library and less so of the school library (given the statistic relating to school libraries above, this is not surprising). Worryingly, a majority of the respondents had not used a computer before and those who had, mainly used it for word processing purposes. Perhaps understandably, the vast majority of respondents had not been exposed to a library orientation and instruction programme. The findings largely reflect the disadvantaged backgrounds of the students.

The CAUL standard points out that IL requires sustained learning through all levels of formal education – primary, secondary and tertiary. The standard asserts that achieving IL requires an understanding that such development is not outside of the curriculum, but intertwined into its content, structure and sequence (Bundy 2004). Given that the majority of the students had gone through the Core Teaching Programme for Information Skills (1994) and, to a lesser extent, the National Curriculum Statement (2004) which aim to promote IL as a cross-field critical outcome for students (Moll 2009), the researcher anticipated that they might be able to demonstrate at least some of the skills necessary to meet the ALA, ACRL and CAUL's IL standards. Findings in this regard are reported in Section two below.

Section two – findings in relation to the objectives

Tshuma and Chigada (2018: 1) indicate that IL programmes started as bibliographic instruction or user education which did not cover some aspects of technology. To avoid confusion, it must be stated that in this study the components of library instruction such as topic analysis, evaluation of resources and referencing were considered important components of, and competencies in IL, hence the usage of the term MUT "IL programme". It was in this context that the IL standards of the ALA, ACRL and CAUL and Bloom's Taxonomy of Educational Objectives were used as a guiding framework.

Library functions

Students were asked various questions relating to their understanding of traditional (academic) library functions, namely, general lending, reference, short-loan and periodicals. Responses indicated that the majority of respondents, 153 (93%) knew what the library is used for. This broad

understanding, however, was not always evident when it came to more specific aspects of the library, as the majority of respondents, 124 (72.4%) did not know that the general lending collection consists of books that can be borrowed. A majority of respondents 128 (74.7%) did not know that books are borrowed and returned at the issue desk. An even higher percentage of respondents, 78.2% (134) did not know the purpose of a reference collection, while 122 (71.1%) respondents were not aware of the short loan borrowing rules.

It is the author's view that these findings relating to respondents' understanding of library functions tally with Standard 2 of the ALA, ACRL and CAUL guiding framework. One of the outcomes for the standard is for the student to know the scope and purpose of information resources and a library can be considered one such "resource". In Bloom's Taxonomy knowing about different sections of the library and their function is associated with the lower order skills of needing to understand basic concepts before moving on to more complex ones. In this regard, the majority of the respondents were lacking such skills. This lack of basic knowledge about the various functions of the library confirms Mojapelo's (2018a, 2018b) view that the dearth of school libraries has a negative impact on the teachers' and learners' IL skills, including library literacy skills.

Library catalogue

Responses to the questions on the library catalogue indicate a serious lack of knowledge of this aspect. A large proportion of respondents, 122 (71.8%) did not know the purpose of a library catalogue. Answers to the question concerning the selection of the correct DDC (or call number) revealed that vast majority, 165 (97.1%) respondents could not select the correct number, irrespective of the fact that they had used libraries before. This question was later considered as problematic by the author as knowledge about DDC notation can even be a challenge to some library and information personnel. The catalogue remains fundamental to retrieving information from the resources held by a library and training on its use should be an important part of an IL programme, particularly in the context of HDIs such as MUT. As Fourie and Bothma (2005) note, various methods of retrieving information are needed before retrieval strategies can be used and an understanding of the catalogue and its purposes is important in this regard. Information access and retrieval are associated with Standard 2 of the guiding framework. Lack of basic library literacy such as knowing the purpose of the library catalogue is concerning as this knowledge is a fundamental requirement for accessing and retrieving information and for IL in general. Bloom's Taxonomy, as pointed to above, suggests that a student must first master lower-order thinking skills and concepts before progressing to those at a higher order and, in this regard, the

majority of respondents had yet to master lower order skills and concepts such as those associated with a library catalogue.

Sources of information in the library

Respondents' knowledge of information sources found in a library was assessed in a series of questions. Findings can be summarised as follows:

Ability to differentiate between print and electronic sources of information:

- 152 (89.4%) respondents were unable to correctly distinguish all the electronic sources in a list containing both print and electronic sources of information.

Understanding of library reference sources:

- 20 (11.8%) respondents did not know the purpose of a dictionary.
- 127 (74.7%) respondents could not correctly indicate what an encyclopaedia is.

Finding information within sources:

- 112 (65.9%) did not know what a table of contents is; 127 (74.7%) an index; and finally, and perhaps understandably, 144 (84.7%) respondents did not know what a bibliography is.

Thus the majority (and sometimes vast majority) of respondents could not correctly differentiate between electronic and print information sources, had limited or no understanding of an important reference source, and had a similar lack of understanding of what could be considered important elements of an information source which assist in finding information in that source.

It is the author's assumption that respondents had difficulty in answering this section not only due to the lack of, or limited exposure to libraries, information technologies and reading but also due to the problem of language as most students enrolling at the MUT were English second-language speakers. The issue of language is an important one in the South African IL context given that English, in the main, is the language of teaching and dominates information searching and retrieval; and those having a poor command of the language will be at a disadvantage. Nonetheless, failure to differentiate between different sources of information and to be able to find information in books specifically, are associated with outcomes in Standards 2 and 3, namely, the IL person "Knows the scope and purpose of information resources" and "Distinguishes among different sources of information". This IL competency among the respondents thus appeared to be weak. It confirms Noll and Brown's (2018)

finding that whilst students exhibit confidence in terms of IL (for example, confidence in using the internet), they are not always as skilled as they believe themselves to be. Equally, one cannot assume that tertiary level students would have what could be considered basic or fundamental IL competencies such as understanding what an encyclopedia, table of contents and index are.

Topic analysis

Respondents were given the following topic:
"*Voting registration of Umlazi community in Durban during the 8th and 9th November 2003"* They were then asked to analyse the topic by identifying the following elements:

i. The main theme of the topic
ii. The geographic parameters of the topic
iii. The time parameters of the topic.

The number of respondents who answered the question was 96 (56.5%). Thus, a substantial number, 46 (47.9%) did not even attempt an answer. Of the 96 respondents who did make an attempt, less than half, 46 (47.9%) answered correctly by identifying all three elements. Of the 15 respondents who had previous library orientation and background experience, 10 (66.7%) provided a correct response. In this question, there is a manifestation of Standards 2, 3 and 7. A student is expected to access information, analyse and use it critically to assess different points of view and select key points. While 46 respondents were able to correctly analyse the topic it needs to be remembered that this number comprised a small percentage (27%) of the total sample, and the overall performance with this IL competency was thus poor.

Referencing

Various questions eliciting respondents' awareness of the significance of referencing were asked and again the overall response was poor. Many scholars have raised concerns regarding the poor referencing style of students (Noll and Brown 2018; Mnkeni-Saurombe 2015; Fourie and Bothma 2005). With two years of lecturing experience, the author of the article has also observed weak referencing patterns among both undergraduate and postgraduate students. It was apparent that respondents lacked the competencies needed for Standards 5 and 6 which include the ability to acknowledge sources and follow the referencing rules of various bodies such as Harvard and others. For example, 118 (69.4%) respondents did not know the purpose of referencing and 155 (91.2%) did not know that the author's surname (where available) was the first entry term in a reference. Onyancha and Maluleka (2008) argue that poor referencing patterns have also been noted in scholarly journals and it is thus a skill that needs to be strengthened among both students and academics.

Evaluation of information sources

According to Harris (2003: 222-223) the evaluation of information can be done at two levels. At the basic level, one interacts with an information source in order to assess it in terms of suitability for a specific task such as an assignment or project. The higher cognitive level entails an analysis of the content. In the study, a question was asked which could be seen as reflecting both levels. The students were provided with a topic and asked to evaluate the trustworthiness of various sources of information dealing with that topic in terms of objectivity or fairness. The question read as follows:
You are having to address an Umlazi community on the following topic:
"*Treatment for HIV /AIDS in South Africa"*
Please indicate to what extent you would trust the following sources in terms of objectivity or fairness – (not affected by emotion or personal bias)
Please use the following rating scale:
5 = Trust a lot
4 = Trust
3 = Trust a little
2 = Do not trust at all
1 = I do not know

A. *A report on the Television issued by the Minister of Health Dr Manto Shabalala-Msimang* [3/4] *
B. *A one-page advert in the "Ilanga" newspaper [*2/3]
C. *A journal article in the "South African Medical Journal [*4/5]
D. *A report by an unknown writer on the Internet* [2].

*The numbers in parentheses reflect the ratings according to the author's expectations and were used as a basis for comparison with the ratings obtained from the respondents.

Results are presented in tabular format, starting with Table 1. Note that N below refers to the number of respondents who actually rated the source in terms of trust ranging from 5 "Trust a lot" to 2 "Do not trust at all". The number of respondents not committing themselves at all "I do not know" was high, ranging from 61 (35.9%) for source B to 87 (51.2%) for source D.

Table 1: Television report by the Minister of Health, Dr Manto Shabalala-Msimang (n=103)

Level of trust	**Frequency**	**Percentage**
Trust a lot	44	42.7
Trust	32	31.1
Trust a little	19	18.4
Do not trust at all	8	7.8
Total	**103**	**100**

With source A, of the 103 (60.6%) respondents who attempted the question, the highest number 44 (42.8%) indicated a high level of trust ("Trust a lot" – rating of 5) which was at odds with the author's expectations. This was followed by 32 (31.1%) who "Trust" (rating of 4) the source – in line with the author's expectations. The high level of trust given to the source is of concern given that the then Minister of Health was noted for her controversial and incorrect views on the treatment of HIV/AIDS. Respondents either did not take this into consideration in their evaluation or did not know of the controversy.

Table 2: One-page advert in the *"Ilanga"* newspaper (n=109)

Level of trust	**Frequency**	**Percentage**
Trust a lot	10	9.2
Trust	23	21.1
Trust a little	45	41.3
Do not trust at all	31	28.4
Total	**109**	**100**

With source B, an advert in an isiZulu language newspaper, of the 109 (64.1%) respondents who attempted the question, the majority of the respondents (69.7%) either did not trust the source at all (rating of 2) or only trusted it a little (rating of 3). This coincides with the author's expectations. Of concern, however, is the 30.3% of respondents who indicated that they would trust the source.

Table 3: Journal article in the *"South African Medical Journal"* (n=96)

Level of trust	**Frequency**	**Percentage**
Trust a lot	41	42.7
Trust	25	26
Trust a little	14	14.6
Do not trust at all	16	16.7
Total	**96**	**100**

Source C, a journal article, attracted a high level of trust (rating of 5) from 41 (42.7%) of the 96 respondents who provided a rating and a rating of 4 from 25 (26%) of these respondents. These findings also coincided with the author's expectations but the 31.3% of respondents who indicated little or no trust (ratings of 2 and 3) are also of concern.

Table 4: Report by an unknown writer appearing on the Internet (n=83)

Level of trust	**Frequency**	**Percentage**
Trust a lot	3	3.6
Trust	3	3.6
Trust a little	14	16.9
Do not trust at all	63	75.9
Total	**83**	**100**

Of the 83 respondents (less than half of the sample) who provided a rating regarding a report by an unknown writer on the internet, a majority (75.9%) gave a rating of 2 which was in line with the author's expectations.

Bloom's Taxonomy on the use of higher and lower order cognitive skills by students was applicable with this question as was Standard 3 of the framework which states than an information literate student "Evaluates information and its sources critically". Bloom suggests that students should be able to compare and evaluate information from different sources. There was a surprising level of overlap with the ratings provided by the author and those provided by the respondents. The exception being the TV report by the Health Minister where a significant minority (42.7%) of those who answered the question indicated a great deal of trust in the source. Of concern were the ratings (albeit by a minority) of respondents whose ratings were completely at odds with the author's expectations. Of even more concern was the high number of respondents, at one time more than half, who stated that "I do not know".

Among possible reasons for this is that they did not understand the concept of evaluation of information sources which suggests a severe lack in their IL competencies and a misalignment with Standard 3 noted above. The author does acknowledge that it is difficult to evaluate an information source without having access to the source and its contents. Thus, the ratings provided by her and the ratings provided by the respondents need to be seen in the light of this.

Conclusions

Based on the findings of this study, the following conclusions relating to IL skills of first-year MUT students who comprised the study sample can be drawn:

- The majority of students (71.8%) had not used a computer, a substantial minority (40.6%) had not used a library, and an overwhelming majority (91.2%) had no form of library orientation and instruction prior to attending MUT. Experience and thus competence in using computers and libraries, both of which are important necessities for IL, were lacking on the part of the students.
- While a significant majority (89.1%) of students knew what a library is used for, this knowledge was not extended to the more specific (and traditional) library functions such as lending, reference and short loan. In each of these instances, more than 70% of respondents expressed ignorance.
- Despite its importance as a tool for information searching and retrieval in a library, a majority (71.8%) of students did not know the purpose of a library catalogue and their understanding (in retrospect, understandably) of DDC notation was far worse.
- The ability of the students to correctly distinguish between print and electronic sources of information and the various elements which assist in finding information within a source (such as a book) was limited. Thus, for example, only 10.6% of respondents were able to correctly distinguish electronic from print sources and only a quarter (25.3%) knew the purpose of an index.
- A majority (73%) of the students were unable to correctly analyse the important elements in a given topic – an important component of IL.
- Findings regarding respondents' understanding of referencing echoed the concerns expressed by other researchers. Thus 69.4% and 91.2% of respondents did not know, respectively, the purpose of referencing and the importance of the author's surname in a reference.
- While acknowledging the difficulty involved in measuring the ability to evaluate information sources, it is evident that many of the students who

attempted to evaluate such sources fell short in doing so when comparing their evaluations with the expectations of the author.

These conclusions support the findings of other similar studies that have been conducted in SA and elsewhere. While dated, they reflect a worrying lack of what could be considered basic or fundamental IL skills on the part of the first-year students at the MUT. Of concern is the probability that the situation has not improved 15 years later and, as suggested above, a follow-up study at the MUT would be of value. The proliferation of digital information and the more widely available means to access such information would need to be taken into consideration. The recommendations which follow thus need to be seen not only in the light of the findings and conclusions as outlined above but also in terms of the situation vis a vis IL competency of tertiary students still being of grave concern.

Recommendations

- Teaching of IL skills in schools

It imperative that IL skills be imparted or taught at a high school level [and even earlier] to strengthen the National Curriculum Statement (Moll 2009). It is evident that IL skills at a basic or fundamental level are lacking and early intervention is needed (before the tertiary level is reached). The absence of school libraries in the vast majority of schools in SA makes the needed intervention extremely difficult. Many authors agree that for an effective IL programme more resources which are in line with the technologies are needed to promote metaliteracy skills among the 21st-century students and lecturers. Also needed are collaborative programmes between relevant stakeholders to build strong IL programmes. Furthermore, follow-up surveys are needed to determine the impact of the programme and the assessment of results needs to be documented (Zimu 2005: 77).

- Basic IL intervention programme and integration into the curriculum

The teaching of IL must not be conducted as a once-off programme. Findings of the study indicated fundamental IL inadequacies in the majority of first-year students who comprised the sample. This highlights the need for an IL intervention programme that would start at what could be considered a basic level insofar as tertiary students are concerned. As inferred earlier, any IL intervention in this, the 21st century, would need to take into consideration the use of available computer technologies which can facilitate the improvement of the intervention for the benefit of students (as well as lecturers).

- International and national standards

The standards provided by the ALA, CAUL, ACRL and Bloom's Taxonomy of Educational Objectives helped the author in understanding MUT students' competencies. However, it is recommended that national standards which meet local needs of tertiary students and their curricula, need to be developed.

References

Adams, N.E. 2015. Bloom's taxonomy of cognitive learning objectives. *Journal of the Medical Library Association* 103(3): 152-153.

American Library Association (ALA). 2000. *Information literacy competency standards for higher education*. www.ala.org/ala/mgrpsldivs/acril/standards/standards.pdf. Accessed 27 August 2004.

Association of College and Research Libraries. 2000. *Information literacy competency standards for higher education*. http://www.ala.org/acrl/ilintro.html. Accessed 3 July 2002.

Babbie, E. and Mouton, J. 2001. *The practice of social research*. Oxford: Oxford University Press.

Bless, C. and Higson-Smith, C, 1995. *Fundamentals of social research methods: an African perspective*. 2nd ed. Kenwyn: Juta.

Boekhorst, A.K. and Britz, J.J. 2004. Information literacy at school level: a comparative study between the Netherlands and South Africa. *South African journal of libraries and information science* 70(2): 63-71.

Bundy, A. 2004. *Australian and New Zealand Information Literacy Framework: principles, standards and practice*. Underdale, South Australia: Australian and New Zealand Institute for Information Literacy (ANZIL).

Council of Australian University Librarians. 2001. Information literacy standards. http://www.casl.org.au/papers/casl/information.literacy.standards.pdf Accessed 12 February 2004.

Davids, Z. and Omar, Y. 2018. Implementing a certificate IL programme and engaging with faculty: a case study of the Cape Peninsula University of Technology. *South African Journal of libraries and information science* 84(1): 1-10.

De Jager, K. and Nassimbeni, M. 2005. Information literacy and quality assurance in South African higher education institutions. *Libri* 55(1): 31-38.

De Jager, K. and Nassimbeni, M. 2003. An exploration of the current status of information literacy tuition in South African tertiary institutions and proposals for curriculum design. *South African journal of libraries and information science* 69(2): 108-114.

De Jager, K. and Nassimbeni, M. 2002. Can they and do they: exploring information literacy tuition in South African tertiary institutions. Presentation at the LIASA Conference: *Revitalising and Creating a Vibrant Library World in the 21st Century*. Port Elizabeth Technikon, 30 September to 04 October 2002.

Favaro, S. 2012 Information literacy and knowledge management tools for first year students. In Gwyer, R., Stubbings, R. and Walton, G. eds. *The road to information literacy: librarians as facilitators of learning*. Hague, Netherlands: De Gruyter Saur, pp. 215-223.

Fourie, I. and Krauss K. 2010. Information literacy training for teachers in a declining South African context: suggestions for a multi-disciplinary planning approach. *Innovation* 41: 107-122.

Fourie, I. and Bothma, T. 2005. Addressing the digital divide in teaching information retrieval: a theoretical view on taking students from ICT access to knowledge sharing. *Electronic library* 24 (1): 469-489.

Harbele, N. 2002. *Developing a theoretical evaluative framework for IL interventions: a South African initiative*. http://www.sajhe.org.za. Accessed 12 August 2004.

Harris, M.E. 2003. Creating partnerships for information literacy in Jamaican schools. *International association of school librarianship reports: school libraries breaking down barriers* 32 (7): 219-226.

Hart, G. and Davids, M. 2010. Challenges of information literacy education at a University of Technology. *Innovation* 41(1): 25-41.

Jiyane, G.V. and Onyacha, O.B. 2010. Information literacy education and instruction in academic libraries and LIS schools in institutions of higher education in South Africa. *South African journal of libraries and information science* 76(1): 11-23.

Lwehabura, M.J.F. 2018. An assessment of information literacy skills among first-year postgraduate students at Sokoine University of Agriculture, Tanzania. *Journal of librarianship and information science* 50(4): 427-434.

Machi, Z. 2016. National Library Week at MUT: libraries will give you life-long lessons. *Spirit: a Mangosuthu University of Technology newsletter* 1: 1-32.

Mangosuthu Technikon Calendar, 2004.

Mnkeni-Saurombe, N. 2015. Information literacy: a cornerstone for open distance learning at the University of South Africa. *Journal of librarianship and information science* 47(2): 1-10.

Mojapelo, S.M. 2018a. Challenges faced by libraries in a democratic South Africa: a case of three community libraries in Limpopo Province, South Africa. *Information development* 34(4): 408-21.

Mojapelo, S.M. 2018b. Challenges in establishing and maintaining functional school libraries: lessons from Limpopo Province, South Africa. *Journal of librarianship and information science* 50(4): 410-26.

Moll, M. 2009. Information literacy in the new curriculum. *South African journal of libraries and information science* 75(1): 40-45.

Neerputh, S. 2012 Academic integration of information literacy at the Durban University of Technology in preparing for lifelong learners. In Gwyer, R., Stubbings R. and Walton, G. eds. *The road to information literacy: librarians as facilitators of learning.* Hague, Netherlands: De Gruyter Saur, pp. 253-266.

Noll, S.D. and Brown, C. 2018. Rethinking information literacy in a postgraduate class at a South African higher education institution. *Mousaion* 36(2): 1-26.

Ondari-Okemwa, E. 2016 Developing digital information literacy at institutions of higher learning in sub-Saharan Africa: opportunities and challenges. In *SCESCAL XXII proceedings of the digital transformation and the changing role of libraries and information centres in the sustainable development of Africa* designed by Bongani Mkhaliphi, Morrison Mkhonto and John Paul Anbu. Mbabane, Swaziland: Swaziland Library and Information Association, pp.1-38.

Onyancha, O.B. and Maluleka, J.R. 2008. Referencing patterns in the South African Journal of Libraries and Information Science, 1996-2007. Paper presented at the conference proceedings of the Faculty of Arts Conference, Pretoria, South Africa.

Ranthla, L.B. 2017. Distance students' readiness for an online information literacy programme: Unisa School of Accountancy as a case study. MIS thesis. Pretoria: University of Pretoria.

Tiemensma, L. 2012. Information literacy education in higher education institutions in South Africa. In Gwyer, R., Stubbings, R. and Walton, G. eds. *The road to information literacy: librarians as facilitators of learning*. Hague, Netherlands: De Gruyter Saur, pp. 155-168.

Toteng, B., Hoskins, R. and Bell, F. 2010. Information literacy and law students at the University of Botswana. *Innovation* 41: 62-82

Tshuma, T. and Chigada, J. 2018. Analysing information literacy practices at selected academic libraries in Zimbabwe. *South African journal of information management* 20 (1): 1-7.

Yager, Z, Salisbury, F. and Kirkman, L. 2013. Assessment of information literacy skills among first year students. *International journal of the first year in higher education* 4(1): 59-71.

Zimu, A.N. 2005. Assessment of information literacy skills of first year students at Mangosuthu University of Technology at a pre-library orientation and instruction phase. MIS thesis. Pietermaritzburg: University of KwaZulu-Natal.